

「CLAIMS」

CM 1. A compact portable apparatus for dispensing a  
2 liquid under pressure at a substantially constant flow rate  
over a period of time comprising:

4 P1 an elongated generally cylindrical support member;  
L  
6 elongated elastic sleeve means mounted and sealingly  
secured at fixed spaced longitudinal positions on said  
support member for defining a substantially zero  
8 non-pressurized volume pressure reservoir for holding a  
liquid in a pressurized state for dispensing therefrom;

10 P1 housing means comprising collapsible non-stretchable  
housing means for containing said support member and said  
12 pressure reservoir for enabling said pressure reservoir to  
expand naturally and for confining said reservoir to fill  
14 concentrically about said support member;

P1 inlet means for introducing a liquid into said elastic  
16 pressure reservoir; and

P1 outlet means for dispensing liquid from said pressure  
18 reservoir to a selected site.

2. An apparatus for dispensing a liquid under  
2 pressure according to claim 1 wherein said collapsible

non-stretchable housing means comprises a substantially  
4 spherical housing.

3. An apparatus for dispensing a liquid under  
2 pressure according to claim 2 wherein said housing means  
further comprises a generally cylindrical substantially  
4 rigid housing having an open end for receiving said support  
member.

4. An apparatus for dispensing a liquid under  
2 pressure according to claim 2 wherein:

P1 said support member is an elongated generally  
4 cylindrical mandrel mounted in said housing means and  
having opposite ends exposed to the exterior of said  
6 housing means, said inlet means comprises an inlet port in  
one end of said mandrel, and said outlet means comprises an  
8 outlet port in the other end of said mandrel; and

P1 said housing means is clamped at opposite ends thereof  
10 with said elastic sleeve means around opposite ends of said  
mandrel by an elastic ring.

5. An apparatus for dispensing a liquid under  
2 pressure according to claim 1 wherein:

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P1 said collapsible non-stretchable housing means is  
4 substantially spherical having openings formed in opposite  
ends thereof by co-extending tubular sleeves; and

6 P1 said housing means is commonly clamped at opposite  
ends thereof with said elastic sleeve means around opposite  
8 ends of said support member by means of an O-ring extending  
around said tubular sleeves.

6. An apparatus for dispensing a liquid under  
2 pressure according to claim 5 wherein said said O-rings are  
each covered by a cup shaped cap removeably attached to the  
4 ends of said support member.

7. An apparatus for dispensing a liquid under  
2 pressure according to claim 6 wherein said housing means  
further comprises a generally cylindrical substantially  
4 rigid housing having an open end for receiving said support  
member coaxially therein.

CLS 849 10  
8. An apparatus for dispensing a liquid under  
2 pressure according to claim 1 wherein:

P11 said housing means comprises a flexible  
4 non-stretchable shell having a substantially spherical

central chamber with openings formed in opposite ends thereof by co-extending tubular sleeves; and

91 said housing means is secured at opposite ends thereof with said elastic sleeve means around opposite ends of said support member by means of an O-ring extending around said tubular sleeves.

11. 11 An apparatus for dispensing a liquid under pressure according to claim 10 wherein said O-rings are each covered by a cup shaped cap removeably attached to the ends of said support member.

12. 12 An apparatus for dispensing a liquid under pressure according to claim 1 wherein said housing means comprises a substantially rigid housing having an opening in one end for receiving said support member coaxially therein.

13. 13 An apparatus for dispensing a liquid under pressure according to claim 12 wherein said rigid housing has a substantially spherical configuration with a removable closure for enabling receipt of said pressure reservoir in a filled condition.

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12. A compact collapsible infusion apparatus for  
dispensing a liquid under pressure at a predetermined  
substantially constant flow rate over a period of time  
comprising:

P1 an elongated generally cylindrical support member  
having inlet means including an inlet port in one end of  
said member, and outlet means including an outlet port in  
the other end of said member;

P1 elongated elastic sleeve means mounted in  
non-stretched surface contact and sealingly secured at  
fixed spaced longitudinal positions on said support member  
for defining a substantially zero non-pressurized volume  
pressure reservoir for holding a liquid in a pressurized  
state for dispensing therefrom;

P1 first housing means including a collapsible shell  
enclosing said support member and said pressure reservoir,  
said housing having a size and shape for enabling said  
pressure reservoir to expand naturally and for confining  
said reservoir to fill concentrically about said support  
member;

P1 inlet means in one end of said support member for  
introducing a liquid into said elastic pressure reservoir;  
and

24 P1 outlet means in the other end of said support member  
for dispensing liquid from said pressure reservoir to a  
26 selected site.

<sup>11. 16</sup>  
~~13.~~ An apparatus for dispensing a liquid under  
2 pressure according to claim <sup>15</sup>~~12~~ wherein:

P1 said housing means comprises a flexible  
4 non-stretchable shell having a substantially spherical  
central chamber with openings formed in opposite ends  
6 thereof by co-extending tubular sleeves; and

P1 said housing means is secured at opposite ends thereof  
8 with said elastic sleeve means around opposite ends of said  
support member by means of an O-ring extending around said  
10 tubular sleeves.

<sup>17 17</sup>  
~~14.~~ An apparatus for dispensing a liquid under  
2 pressure according to claim <sup>16</sup>~~13~~ wherein said housing means  
further comprises a generally cylindrical substantially  
4 rigid housing having an open end for receiving said support  
member coaxially therein.

<sup>18</sup>  
~~15.~~ An apparatus for dispensing a liquid under  
2 pressure according to claim <sup>16 16</sup>~~13~~ further comprising a cup

shaped cap removeably attached to each end of said support  
4 member for protectively covering said O-rings.

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16. An apparatus for dispensing a liquid under  
2 pressure according to claim <sup>18</sup> ~~15~~ wherein said housing means  
comprises a substantially rigid housing having an opening  
4 in one end for receiving said support member coaxially  
therein.

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17. A medical infusion kit having multiple apparatus  
2 for dispensing multiple dosages of a liquid under pressure  
at a substantially constant flow rate over a period of time  
4 comprising:

Pl  
6 a plurality of substantially identical collapsible  
infusion devices, each having a collapsible housing having  
a chamber for containing a pressure reservoir, an elongated  
8 generally cylindrical support member disposed in and  
extending through said chamber, an expansible elastic  
10 pressure reservoir mounted on said support member in said  
chamber for holding said liquid under pressure during  
12 dispensing thereof, said elastic pressure reservoir  
comprises an elastic sleeve snugly mounted over said  
14 support member in said chamber for defining a pressure  
reservoir for holding a liquid in a pressurized state for

16 dispensing therefrom, inlet means in one end of said  
support member for introducing a liquid into said elastic  
18 sleeve;

20 <sup>p1</sup> a substantially rigid housing having an open end for  
removeably receiving said infusion devices coaxially  
therein in a filled condition; and

22 <sup>p1</sup> outlet means in the other end of said support member  
for conveying a liquid from said pressure reservoir to a  
24 selected site.

<sup>24</sup>  
~~18.~~ An infusion kit according to claim <sup>23</sup> ~~17~~ wherein  
2 said collapsible housing comprises a flexible  
non-stretchable shell having a substantially spherical  
4 central chamber with openings formed in opposite ends  
thereof by co-extending tubular sleeves; and

6 <sup>p1</sup> said shell is secured at opposite ends thereof with  
said elastic sleeve around opposite ends of said support  
8 member by means of an O-ring extending around said tubular  
sleeves.

<sup>25</sup>  
~~19.~~ An infusion kit according to claim <sup>24</sup> ~~18~~ further  
2 comprising a cup shaped cap removeably attached to each end  
of said support member for protectively covering said  
4 O-rings.



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20. An infusion kit according to claim ~~19~~ wherein  
2 wherein said plurality of infusion devices are from five to  
seven in number.

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21. An apparatus for dispensing liquid under pressure  
2 according to claim 1 wherein said housing means comprises a  
substantially spherical rigid housing formed of like  
4 half-shells hinged together.

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22. An apparatus for dispensing liquid under pressure  
2 according to claim 6 wherein said housing means comprises a  
substantially spherical rigid housing formed of like  
4 half-shells hinged together for removably receiving said  
support member and elastic sleeve.

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23. An apparatus for dispensing liquid under pressure  
2 according to claim ~~22~~ <sup>8</sup> wherein said housing has openings  
forming stepped recesses for receiving said caps.

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24. An apparatus for dispensing liquid under pressure  
2 according to claim ~~13~~ <sup>16</sup> wherein said housing means further  
comprises a pair of substantially semi-spherical pivotably  
4 connected half-shells forming a substantially spherical  
rigid housing.

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21  
23. An apparatus for dispensing liquid under pressure  
2 according to claim ~~24~~<sup>20</sup> wherein said housing has openings  
NP  
RK forming stepped recesses for receiving said caps.

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26. A compact portable dispensing apparatus for  
2 dispensing a liquid under pressure at a substantially  
constant flow rate over a period of time comprising:

4 P1 an elongated substantially cylindrical support member;  
L  
6 elongated elastic sleeve means mounted on and  
sealingly secured at fixed spaced longitudinal positions on  
said support member for defining a pressure reservoir for  
8 holding a liquid in a pressurized state for dispensing  
therefrom;

10 P1 housing means comprising a substantially spherical  
rigid housing formed of like, half-shells hinged together  
12 for removeably containing said support member and said  
pressure reservoir for enabling said pressure reservoir to  
14 expand naturally and for confining said reservoir to fill  
concentrically about said support member;

16 P1 inlet means for introducing a liquid into said elastic  
pressure reservoir; and

18 P1 outlet means for dispensing liquid from said pressure  
reservoir to a selected site.

22  
27. An apparatus for dispensing liquid under pressure  
according to claim <sup>20</sup>~~24~~ wherein said housing has openings  
forming stepped recesses for receiving said caps.

28. An apparatus for dispensing a liquid under  
pressure according to claim <sup>27</sup>~~26~~ wherein:

P1 said housing means comprises a flexible  
non-stretchable shell having a substantially spherical  
central chamber with openings formed in opposite ends  
thereof by co-extending tubular sleeves; and

P1 said housing means is secured at opposite ends thereof  
with said elastic sleeve means around opposite ends of said  
support member by means of an O-ring extending around said  
tubular sleeves.